

SECOND SUBSTITUTE SPECIFICATION

PATENT

INSTITUT FRANÇAIS DU PETROLE

METHOD FOR MEASURING THE WETTABILITY OF ROCKS BY NUCLEAR MAGNETIC RESONANCE

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ABSTRACT

A method for measuring the wettability of rocks by low-field nuclear magnetic resonance is described which has application for hydrocarbon reservoir engineering or development, or in civil engineering. The method essentially determines the water wet pore surface and the oil wet pore surface when the sample is saturated with water and oil, by measurements of relaxation times (T1, T2) of the sample placed in a nuclear magnetic resonance device, previously brought to various water or oil saturation states, and calculating the wettability index by combination of values the relaxation times obtained for said surfaces.